



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,897	09/28/2001	Peter Kamvysselis	EMS-02002	3541
26339	7590	02/24/2005	EXAMINER	
			SHINGLES, KRISTIE D	
PATENT GROUP			ART UNIT	PAPER NUMBER
CHOATE, HALL & STEWART				
EXCHANGE PLACE, 53 STATE STREET				
BOSTON, MA 02109			2141	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,897	KAMVYSELIS, PETER	
	Examiner	Art Unit	
	Kristie Shingles	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 September 2001.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 63-108 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 63-108 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 28 September 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claims 1-62 are cancelled. Claims 63-108 are pending.

Priority

1. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 120.

The certified copy has been filed in parent Application No. 09/940,903, filed on 8/28/2001.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 130. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101 Utility

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Art Unit: 2141

4. **Claims 86-103** are rejected under 35 U.S.C. 101 because the claimed invention is not supported by statutory subject matter. The claims are drawn to “A computer program product,” per se, and are non-statutory unless implemented on a computer-readable medium.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims **63-81 and 86-103** are rejected under 35 U.S.C. 102(b) as being anticipated by *Chandra et al* (USPN 6,058,389).

a. **Per claim 63,** *Chandra et al* teach a method of sending data, comprising:

- obtaining a first predetermined value for a sequence number (**col.3 lines 19-30, col.10 lines 46-59, col.14 lines 10-52, col.15 lines 23-55 and col.27 lines 10-65; values for sequencing are determined and specified using a priority code, state value or by a sequence deviation number according to the control information;**)
- obtaining blocks of data, wherein each of the blocks of data corresponds to a packet of data (**col.6 lines 45-51 and col.12 lines 29-35; message units correspond to blocks of data;**)
- assigning the first predetermined value as the sequence number to each of the packets of data (**col.10 lines 46-59, col.11 lines 3-9 and col.14 lines 10-65; the**

priority code, control information or sequence deviation parameter determines the sequencing of the messages in the queue); and

- in response to the sequence number becoming equal to a second predetermined value different from the first predetermined value, acknowledging receipt of the blocks of data corresponding to the packets of data that are assigned the first predetermined value as the sequence number and sending the packets of data that are assigned the first predetermined value as the sequence number to a destination (col.5 line 10-col.6 line 10, col.10 lines 15-26, col.14 lines 10-52, col.15 lines 18-33, col.16 lines 1-11, col.21 line 8-col.22 line 4 and col.27 lines 10-65; when state value reaches “EXPIRED” the message has been processed and received by the exception queue, a message is dequeued when its sequence number has reached a predetermined sequence value greater than the highest sequence number associated with the application and subsequently moved/archived to the Exception Queue).

b. **Claim 86** contains limitations that are substantially equivalent to claim 63 and is therefore rejected under the same basis.

c. **Per claim 64**, *Chandra et al* teach the method of Claim 63, the method further comprising: prior to acknowledging, indicating to a first storage device a transfer ready signal; and sending said blocks of data to a second storage device (**col.4 lines 49-63, col.14 lines 10-46, col.14 lines 23-36 and col.16 lines 6-11; state parameter indicates a “READY” value when the message is ready to be processed and after processing the value becomes “EXPIRED” and sent to a second storage place in the Exception Queue**).

d. **Claim 87** is substantially equivalent to claim 64 and is therefore rejected under the same basis.

e. **Per claim 65**, *Chandra et al* teach the method of Claim 64, wherein said acknowledging is performed prior to providing said blocks of data to said second storage device (**col.15 lines 34-64 and col.16 lines 6-60; provision for indicative parameters and notification process before messages leave the queue for another location**).

f. **Claim 88** is substantially equivalent to claim 65 and is therefore rejected under the same basis.

g. **Per claim 66,** *Chandra et al* teach the method of Claim 63, wherein the second predetermined value is a number that is one greater than the first predetermined value (**col.21 line 14-col.22 line 4, col.25 line 56-col.27 line 65 and col.28 lines 1-15; incrementing to a higher value**).

h. **Claim 89** is substantially equivalent to claim 66 and is therefore rejected under the same basis.

i. **Per claim 67,** *Chandra et al* teach the method of Claim 63, farther comprising: in response to the sequence number becoming equal to the second predetermined value, providing a value to each of the packets corresponding to a total number of packets of data that are assigned the first predetermined value as the sequence number (**col.10 lines 38-40, col.18 lines 37-48, col.21 line 8-col.22 line 4 and col.25 line 56-col.27 line 65**).

j. **Claim 90** is substantially equivalent to claim 67 and is therefore rejected under the same basis.

k. **Per claim 68,** *Chandra et al* teach the method of Claim 63, farther comprising: incrementing the sequence number periodically (**col.13 line 49-col.14 line 6, col.20 line 40-col.21 line 7 and col.22 lines 1-4; sequence numbers are incremented and decremented according to the insertions and deletions in the queue**).

l. **Claim 91** is substantially equivalent to claim 68 and is therefore rejected under the same basis.

m. **Per claim 69,** *Chandra et al* teach the method of Claim 68, wherein incrementing the sequence number periodically includes incrementing the sequence number according to an amount of time between a first block of data being provided and a second block of data being prodded, wherein the second block of data being provided depends upon the first block of data being provided (**col.24 line 55-col.26 line 66 and col.28 lines 16-col.29 line 54**).

n. **Claim 92** is substantially equivalent to claim 69 and is therefore rejected under the same basis.

o. **Per claim 70,** *Chandra et al* teach the method of Claim 63, further comprising: prior to sending the packets of data, storing the data in a journal (**col.2 lines 52-60, col.4 lines 49-63, col.6 lines 12-44, col.6 line 64-col.7 line 3, col.10 lines 38-40, col.15 lines 39-44 and col.35 lines 1-26; provision for cache and storage prior to transmitting/transferring messages**).

p. **Claim 93** is substantially equivalent to claim 70 and is therefore rejected under the same basis.

q. **Per claim 71,** *Chandra et al* teach the method of receiving data, comprising:

- accumulating received packets of data having a sequence number equal to a first predetermined value (**col.3 lines 19-30, col.10 lines 46-59, col.14 lines 10-52, col.15 lines 23-55 and col.27 lines 10-65; values for sequencing are determined and specified using a priority code, state value or by a sequence deviation number according to the control information**);
- obtaining a first indication that the sequence number equals the first predetermined value (**col.10 lines 46-59, col.11 lines 3-9, col.14 lines 10-65, col.15 lines 34-64 and col.16 lines 6-60; provision for indicative parameters and notification process before messages leave the queue for another location—the priority code, control information or sequence deviation parameter determines the sequencing of the messages in the queue**);

- obtaining a second indication that the sequence number equals a second predetermined value different from the first predetermined value (**col.4 lines 49-63, col.14 lines 10-46, col.14 lines 23-36 and col.16 lines 6-11; state parameter indicates a “READY” value when the message is ready to be processed and after processing the value becomes “EXPIRED” and sent to a second storage place in the Exception Queue**); and
- in response to obtaining the second indication, transferring data corresponding to packets of data having the sequence number equal to the first predetermined value to a receiving device (**col.5 line 33-col.6 line 10, col.10 lines 15-26, col.14 lines 10-52, col.15 lines 18-33, col.16 lines 1-11, col.21 line 8-col.22 line 4 and col.27 lines 10-65; when state value reaches “EXPIRED” the message has been processed and received by the exception queue, a message is dequeued when its sequence number has reached a predetermined sequence value greater than the highest sequence number associated with the application and subsequently moved/archived to the Exception Queue**).

r. **Claim 94** contains limitations that are substantially equivalent to claim 71 and is therefore rejected under the same basis.

s. **Per claim 72, Chandra et al** teach the method of Claim 71, further comprising: following obtaining the first indication, initiating a transfer command to the receiving device (**col.4 lines 49-63, col.14 lines 10-46, col.14 lines 23-36 and col.16 lines 6-11; state parameter indicates a “READY” value when the message is ready to be processed and after processing the value becomes “EXPIRED” and sent to a second storage place in the Exception Queue**).

t. **Claims 74, 95 and 97** are substantially similar to claim 72 and are therefore rejected under the same basis.

u. **Per claim 73, Chandra et al** teach the method of Claim 72, wherein data is not transferred to the receiving device until the receiving device acknowledges initiation of data transfer in response to the transfer command being initiated (**col.15 lines 34-64 and col.16 lines 6-60; provision for indicative parameters and notification process before messages leave the queue for another location**).

v. **Claims 75, 96 and 98** are substantially equivalent to claim 73 and are therefore rejected under the same basis.

w. **Per claim 76,** *Chandra et al* teach the method of Claim 71, wherein the second predetermined value is a number that is one greater than the first predetermined value (**col.21 line 14-col.22 line 4, col.25 line 56-col.27 line 65 and col.28 lines 1-15; incrementing to a higher value**).

x. **Claim 99** is substantially equivalent to claim 76 and is therefore rejected under the same basis.

y. **Per claim 77,** *Chandra et al* teach the method of Claim 71, farther comprising: incrementing the sequence number periodically (**col.13 line 49-col.14 line 6, col.20 line 40-col.21 line 7 and col.22 lines 1-4; sequence numbers are incremented and decremented according to the insertions and deletions in the queue**).

z. **Claim 100** is substantially equivalent to claim 77 and is therefore rejected under the same basis.

aa. **Per claim 78,** *Chandra et al* teach the method of Claim 77, wherein incrementing the sequence number periodically includes incrementing the sequence number according to an amount of time between a first packet of data being provided and a second packet of data being provided, wherein the second packet of data being provided depends upon the first packet of data being provided (**col.24 line 55-col.26 line 66 and col.28 lines 16-col.29 line 54**).

bb. **Claim 101** is substantially equivalent to claim 78 and is therefore rejected under the same basis.

cc. **Per claim 79**, *Chandra et al* teach the method of Claim 71, further comprising: prior to transferring the data, storing the data in a journal (**col.2 lines 52-60, col.4 lines 49-63, col.6 lines 12-44, col.6 line 64-col.7 line 3, col.10 lines 38-40, col.15 lines 39-44 and col.35 lines 1-26; provision for cache and storage prior to transmitting/transferring messages**).

dd. **Claim 102** is substantially equivalent to claim 79 and is therefore rejected under the same basis.

ee. **Claims 80, 81 and 103** contain limitations substantially equivalent to claims 63 and 71 and are therefore rejected under the same basis.

7. **Claims 104-107** are rejected under 35 U.S.C. 102(e) as being anticipated by *Bellaton et al* (USPN 6,473,425).

a. **Per claim 104**, *Bellaton et al* teach a data structure stored in a memory of a computer system, comprising:

- a sequence number field that includes a sequence number associated with a block of data corresponding to the data structure, said sequence number being used in sending and receiving said block of data such that when said block of data is one of a plurality of ordered blocks, said plurality is provided to a receiving device in an order in which said ordered blocks were previously provided to a sending device (**Abstract, col.8 lines 53-67 and col.9 lines 42-56; provision for sequence numbering of data**);
- an indicator of the number of blocks having said sequence number (**Abstract and col.9 lines 7-57**);
- a destination field indicating at least one destination for said data associated with said data structure (**col.8 line 53-col.9 line 6**);
- a sent field indicating which of at least one recipients have been sent said data (**col.8 line 53-col.9 line 7**);
- a receive field indicating which of said at least one recipients have acknowledged receiving said data (**col.9 lines 9-66; TCP acknowledgment field**); and

- a storage field associated with said data (**col.8 line 1-col.10 line 32**).

b. **Per claim 105**, *Bellaton et al* teach the data structure of Claim 104, further comprising: a send time stamp field indicating when the data has been sent (**col.3 lines 35-64; provision for timer implemented when data is sent**).

c. **Per claim 106**, *Bellaton et al* teach the data structure of Claim 105, further comprising: a receiving time stamp field indicating a predetermined amount of time used as a time-out value such that a receiving storage device may time-out after said predetermined amount of time has passed from when the data was received and when the data is acted upon (**col.3 line18-col.4 line 29; provision for RTT timer implemented for indicating when data is received and if a packet is lost due o the lack of an acknowledgment message**).

d. **Claim 107** is substantially similar to claim 106 and is therefore rejected under the same basis.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 82-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chandra et al* (USPN 6,058,389) in view of *Talluri et al* (USPN 6,014,710).

Art Unit: 2141

a. **Per claim 82,** *Chandra et al* teach the computer system of claim 81 as applied above, yet fail to explicitly teach the computer system of Claim 81, wherein said first WAN blade is one of a first set of WAN blades, said second WAN blade is one of second set of WAN blades, said first device is included in a first consistency group of a plurality of storage devices, and said second device is included in a second consistency group of a plurality of storage devices. However, *Talluri et al* disclose storage nodes of a network with virtual and physical addresses for mapping data among the storage devices (**col.1 line 60-col.2 line 55, col.8 lines 15-55 and col.10 line 49-col.11 line 27**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Chandra et al* and *Talluri et al* for the purpose of providing access to data within a plurality of storage device operable over WAN; because it would allow distributed data buffering and archiving as well as transmission of the data over the Internet framework.

b. **Claims 83-85** are substantially similar to claim 82 and are therefore rejected under the same basis.

10. **Claim 108** is rejected under 35 U.S.C. 103(a) as being unpatentable over *Bellaton et al* (USPN 6,473,425) in view of *Talluri et al* (USPN 6,014,710).

Per claim 108, *Bellaton et al* teach the data structure of claim 104 as applied above, yet fail to explicitly teach the data structure of Claim 104, wherein at least one of said sent field, said receive field, and said destination field are a bitmap representation. However, *Talluri et al* disclose data structures with information fields, such as: TimeSent, Gen, MyAck

and RecAck, which are represented by bit sequencing wherein memory export messages are mapped using the global address range with the local physical addresses (**col.6 line 30-col.8 line 54, col.11 line 31-col.13 line 11 and col.17 line 35-col.20 line 4**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Bellaton et al* and *Talluri et al* for the purpose of presenting the data fields in bit format; because it would allow for implementation and a comprehensive representation of the data maintained in the fields.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. *Chu* (USPN 4,093,823) discloses a statistical multiplexing system for computer communications.
- b. *Baber et al* (USPN 6,546,428) disclose methods, systems and computer program products for transferring a file using a message queue.
- c. *Autrey et al* (USPN 6,732,125) disclose self-archiving log structured volume with intrinsic data protection.
- d. *Peters et al* (USPN 6,374,336) disclose a computer system and process for transferring multiple high bandwidth streams of data between multiple storage units and multiple applications in a scalable and reliable manner.
- e. *Martin et al* (USPN 5,632,027) disclose a method and system for mass storage device configuration management.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie Shingles whose telephone number is 571-272-3888. The examiner can normally be reached on Monday-Friday 8:30-6:00.

Art Unit: 2141

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kristie Shingles
Examiner
Art Unit 2141

kds



RUPAL DHARIA
SUPERVISORY PATENT EXAMINER